REMARKS

Claims 1, 2, 4, 5 and 7-10, 12-24, 26 and 28-32 are currently pending in the subject application, and are presently under consideration. Claims 1-5 and 7-27 are rejected. Claims 1, 12, 16, and 26 have been amended. Claims 3, 11, 25, and 27 have been cancelled. New claims 28-32 have been added. Favorable reconsideration of the application is requested in view of the amendments and comments herein.

I. Interview Summary

Representative for Applicant conducted an interview with the Examiner on June 5, 2008. Several agreements were reached relating to the Office Action and the present application.

Representative for Applicant and the Examiner agreed that the claimed tuning algorithm, such as is shown and described with respect to the control 30 of FIG. 1 and the tuning algorithm 64 of FIG. 2, is adequately described in the Present Application with respect to FIG. 7 of the Present Application.

Representative for Applicant and the Examiner also agreed that U.S. Publication No. 2003/0012364 to Lee ("Lee") does not teach means for decoding a control signal provided by a control system to generate an output signal having one of a plurality of states, each of the plurality of states corresponding to loop impedance and line coupling characteristics for a respective associated communications network, as recited in claim 12, and decoding a control signal to provide a decoder output having a value corresponding to one of a plurality of impedance characteristics that substantially matches predetermined loop impedance characteristics of an associated subscriber loop, as recited in claim 16, submitted in the Amendment filed January 18, 2008. Support for this feature of claims 12 and 16 can be found, for example, in the Present Application at page 7, lines 4-14; page 7, line 24 through page 8, line 6; and page 9, line 30 through page 10, line 5.

II. Rejection of Claims 7-11 under 35 U.S.C. §112

Claims 7-11 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. As discussed above in the Interview Summary, Representative for Applicant and the Examiner agreed that the claimed tuning algorithm is

adequately described in the Present Application with respect to FIG. 7 of the Present Application. In particular, FIGS. 6 and 7 and the corresponding description (beginning at the bottom of page 12 of the present application) describe methods that can be realized in the systems of FIGS. 1 and 2, for tuning and selectively configuring a hybrid circuitry with settings for improved Rx/Tx ratio. Thus when the written description is considered as a whole, it is clear that one skilled in the art would understand that the inventors, at the time the application was filed, had possession of what is recited in claims 7-11. Therefore, withdrawal of the rejection of claims 7-11 under 35 U.S.C. §112, first paragraph, is respectfully requested.

III. Rejection of Claims 1, 5, 12, 16, 26, and 27 under 35 U.S.C. §112

Claims 1, 5, 12, 16, 26, and 27 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action asserts that "substantially" is a relative term which renders the claim indefinite, and that one of ordinary skill in the art would not be reasonably apprised of the scope of the invention because the term "substantially is not defined by the claim and that because the specification does not provide a standard for ascertaining the requisite degree (Office Action, page 4). Applicant traverses this rejection for the following reasons.

Claim 27 has been cancelled, and claims 12, 16, and 26 have been amended to change the phrase "frequency response that substantially matches the loop impedance and the line coupling characteristics" to "frequency response that approximates the loop impedance and the line coupling characteristics", thus rendering this rejection moot with respect to claims 12, 26, and 27. Claims 1, 5, and 16 recite the phrase "a receiver input signal that is substantially free of echo due to the transmitter signal. Representative for Applicant respectfully submits that one of ordinary skill in the art would unquestionably know what is meant by the term "substantially removed" with respect to echo in claims 1, 5, and 16. Such use of the term "substantially free from echo" is consistent with decisions of the Court of Appeals of the Federal Circuit. As one example, the court held that the limitation "which produces substantially equal E and H plane illumination patterns" was definite because one of ordinary skill in the art would know what was meant by "substantially equal." *Andrew Corp. v. Gabriel Electronics*, 847 F.2d 819, 6 USPQ2d

2010 (Fed. Cir. 1988). Representative for Applicant also respectfully disagrees with the Office Action's assertion that "the specification does not provide a standard for ascertaining the requisite degree." The Present Application provides a number of statements that support the claimed language, such that one of ordinary skill in the art would unambiguously understand what is meant by the term "substantially free from echo," (see, *e.g.*, Present Application, page 3, line 28 through page 4, line 4; page 4, ll. 24-26; page 5, ll. 5-9; page 6, ll. 4-12). Additional definiteness is provided in conjunction with the methods of FIGS. 6 and 7, in which the hybrid circuit is tuned to operate the hybrid within expected operating parameters (See present application, page 13, lines 12-21) and whether the Rx/Tx ratio is improved (See present application, page 14, lines 8-13), which tuning is consistent with the known purpose of a hybrid circuit. The particular amount of deviation may vary, for example, according to the configuration of the tunable filter, the tuning algorithm used to tune the parameters of the filter, the expected operating parameters of the tunable filter (or hybrid) and application requirements for a in which the tunable filter is used. Nonetheless, one skilled in the art would understand what is meant by the phrase "substantially free from echo" such that these claims are definite.

For all of these reasons, Representative for Applicant respectfully submits that the term "substantially", as recited in claims 1, 5, and 16, does not render claims 1, 5, and 16 indefinite. Withdrawal of the rejection of claims 1, 5, 12, 16, and 26 under 35 U.S.C. §112, second paragraph, is respectfully requested.

IV. Rejection of Claims 1-5, 7-8, 11-17, 19-20, 25, and 27 under 35 U.S.C. §102(e)

Claims 1-5, 7-8, 11-17, 19-20, 25, and 27 have been rejected under 35 U.S.C. §102(e), as being anticipated by U.S. Publication No. 2003/0012364 to Lee ("Lee"). Applicant traverses this rejection for the following reasons.

Claim 1 has been amended to substantially incorporate the elements of claim 27, now cancelled. In rejecting claim 27, the Office Action does not address the language of claim 27. Specifically, the Office Action states that "[r]egarding claims 5 and 27, the limitations are shown above," (Office Action, page 8). However, nowhere in the Office Action are the elements of cancelled claim 27 discussed.

Amended claim 1 recites that the tunable filter comprises a biquad filter that comprises a first amplifier and a second amplifier connected in series, the first amplifier having at least one feedback path that comprises at least one first variable passive component and at least one feedforward path coupled between the first amplifier and the second amplifier that comprises at least one second variable passive component. Representative for Applicant respectfully submits that Lee does not disclose a biquad filter comprising a first amplifier and a second amplifier connected in series, as recited in claim 1. Lee discloses a hybrid (620) that includes only a single amplifier (622) (Lee, FIG. 6). Even assuming *arguendo* that the driver (612) described in FIG. 6 of Lee can be considered an amplifier that is part of the hybrid, neither of the supposed amplifiers of Lee include at least one variable passive component arranged in a feedback or feedforward arrangement, as recited in claim 1. For these reasons, Lee does not anticipate amended claim 1. Withdrawal of the rejection of claim 1, as well as claims 2, 4, 5, 7-11, and 26 which depend therefrom, is respectfully requested.

Claims 12 and 16 recite means for decoding a control signal provided by a control system to generate an output signal having one of a plurality of states, each of the plurality of states corresponding to loop impedance and line coupling characteristics for a respective associated communications network, and decoding a control signal to provide a decoder output having a value corresponding to one of a plurality of impedance characteristics that substantially matches predetermined loop impedance characteristics of an associated subscriber loop, respectively. As described above, Representative for Applicant and the Examiner agreed that Lee does not disclose these elements of claims 12 and 16. Accordingly, Lee does not anticipate claims 12 and 16. Withdrawal of the rejection of claims 12 and 16, as well as claims 13-15 and claims 17-24 which depend therefrom, respectively, is respectfully requested.

V. Rejection of Claims 9, 10, and 26 under 35 U.S.C. §103(a)

Claims 9, 10, and 26 have been rejected under 35 U.S.C. §103(a), as being unpatentable over Lee in view of U.S. Patent No. 6,445,791 to Grisamore, et al ("Grisamore"). Applicant traverses this rejection for the following reasons.

Claims 9, 10, and 26 depend from claim 1. As described above, Lee does not teach that the tunable filter comprises a biquad filter that comprises a first amplifier and a second amplifier

connected in series, the first amplifier having at least one feedback path that comprises at least one first variable passive component and at least one feedforward path coupled between the first amplifier and the second amplifier that comprises at least one second variable passive component, as recited in claim 1. The addition of Grisamore does not cure the deficiencies of Lee to teach claim 1, from which claims 9, 10, and 26 depend. Therefore, neither Lee nor Grisamore, individually or in combination, teach or suggest claims 9, 10, and 26.

In addition, claim 10 recites a decoder that receives a control signal from the control system and provides an output signal to activate the switch network to set a desired impedance for the at least one variable passive component. The Office Action asserts that Grisamore discloses claim 10 (Office Action, page 11; citing Grisamore, col. 3, ll. 28-47). However, Grisamore discloses a video port decoder that decodes S-video, NTSC, or PAL formatted video data into digital form for use by a graphics processor (Grisamore, col. 3, ll. 29-33). Representative for Applicant respectfully submits that the video decoder that is disclosed in Grisamore does not correspond to a decoder that receives a control signal and provides an output signal to activate a switch network to set a desired impedance for at least one variable passive component, as recited in claim 10. Therefore, even if the teachings of Grisamore are combined with Lee, as suggested in the Office Action, the combined teachings still fail to teach or even suggest the decoder in the system of claim 10. Accordingly, withdrawal of the rejection of claim 10 is respectfully requested.

Furthermore, similar to as described above with regard to claim 27, the Office Action does not address the language of claim 26 in rejecting claim 26, but merely states, "the limitations are shown above," (Office Action, page 11). Representative for Applicant thus respectfully submits that the Office Action has failed to adequately demonstrate a *prima facie* rejection of claim 26. Representative for Applicant also respectfully submits that neither Lee nor Grisamore, individually or in combination, teach or suggest that the output signal has a value corresponding to one of a plurality of different predetermined loop characteristics of respective communications networks, the switch network setting the desired impedance for the at least one variable passive component based on the output signal so that the frequency response of the tunable network substantially matches the loop characteristics of the associated communications

network, as recited in claim 26. Withdrawal of the rejection of claim 26 is respectfully requested.

VI. Rejection of Claims 18 and 21-24 under 35 U.S.C. §103(a)

Claims 18 and 21-24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Lee in view of U.S. Patent No. 6,751,202 to Henrie ("Henrie"). Applicant traverses this rejection for the following reasons.

Claims 18 and 21-24 depend from claim 16. As described above, Lee does not teach the elements of claim 16, from which claims 18 and 21-24 depend. The addition of Henrie does not cure the deficiencies of Lee to teach or suggest the elements of claim 16. Therefore, neither Lee nor Henrie, individually or in combination, teach or suggest claims 18 and 21-24. Withdrawal of the rejection of claims 18 and 21-24 is respectfully requested.

In addition, similar to as described above with regard to claim 27, the Office Action does not address the language of claims 21, 23, and 24 in rejecting these claims, but merely states "the limitations are shown above," (Office Action, pages 12-13). Representative for Applicant thus respectfully submits that the Office Action has failed to adequately demonstrate a *prima facie* rejection of claims 21, 23, and 24. Representative for Applicant also respectfully submits that neither Lee nor Henrie, individually or in combination, teach or suggest re-adjusting the frequency response on the measured response to a test signal, as recited in claim 21, storing the tunable parameter setting if a ratio of the received signal to the transmitted signal has improved, as recited in claim 23, and that the tunable parameter of the hybrid circuit comprises a plurality of settings, the method further comprising selecting the next setting until all of the settings have been tested, as recited in claim 24. Withdrawal of the rejection of claims 21, 23, and 24 is respectfully requested.

VII. New claims 28-32

New claim 28 depends from claim 1 and recites that the first amplifier receives the output signal of the transmitter at an input of the first amplifier, the biquad filter further comprising at least one additional variable passive component arranged between an output of the first amplifier and an input of the second amplifier. Support for this amendment is provided in the present

application, for example, at FIGS. 3 and 4, and at page 8, line 7, through page 9, line 2 and at page 9, lines 18-29. Representative for Applicant respectfully submits that none of the cited art teaches or suggests new claim 28. Consideration and allowance of claim 28 is respectfully requested.

New claim 29 depends from claim 1 and recites that the tunable filter further comprises a second filter circuit coupled to an output of the biquad filter, the second filter circuit comprising at least one additional variable passive component that is selectively adjusted by the controller to control a frequency response of the second filter circuit to mitigate echo caused by the output signal of the transmitter in the receiver signal. Support for this amendment is provided in the present application, for example, at FIGS. 3 and 4, and at page 6, lines 24-31, and at page 9, lines 10-13. Representative for Applicant respectfully submits that none of the cited art teaches or suggests new claim 29. Consideration and allowance of claim 29 is respectfully requested.

New claim 30 depends from new claim 29 and recites that the second filter circuit comprises at least one additional amplifier, the at least one additional variable passive component being arranged in a respective at least one feedback path associated with the at least one additional amplifier. Support for this amendment is provided in the present application, for example, at FIGS. 3 and 4, and at page 8, lines 23-25; page 10, lines 3-5. Representative for Applicant respectfully submits that none of the cited art teaches or suggests new claim 30. Consideration and allowance of claim 30 is respectfully requested.

New claim 31 depends from new claim 1 and recites that the at least one feedback path comprises a first feedback path arranged between an output of the first amplifier and an input of the first amplifier, a second feedback path arranged between an output of the second amplifier and the input of the first amplifier, and a third feedback path arranged between the output of the second amplifier and an input of the second amplifier, and wherein the at least one feedforward path comprises a feedforward path arranged between an input of the first amplifier and an input of the second amplifier. Support for this amendment is provided in the present application, for example, at FIGS. 3 and 4, and at page 8, line 7, through page 9, line 2 and at page 9, lines 18-29. Representative for Applicant respectfully submits that none of the cited art teaches or suggests new claim 31. Consideration and allowance of claim 31 is respectfully requested.

New claim 32 generally includes subject matter from claims 1, 5, 9 and 10. Claim 32 recites a tunable hybrid circuit driven by an output signal of a transmitter to provide a filtered output signal, the filtered output signal is combined with a signal from an associated communications network to provide a receiver signal. New claim 32 also recites a control system that implements a tuning algorithm to provide a control signal to set parameters of the tunable hybrid circuit so that a frequency response of the tunable hybrid circuit approximates loop characteristics of the associated communications network. No such control system is taught or suggested in the art of record. The system of claim 32 also includes a decoder that is configured to decode the control signal to generate a decoder output signal. Similar to as discussed above, no such decoder is disclosed in the art of record, as recited in the combination of claim 32. Additionally, claim 32 recites a switch network that is coupled to at least one of the plurality of variable passive components of the tunable hybrid circuit and is configured to adjust the parameters of the tunable hybrid circuit based on the decoder output signal so that the hybrid circuit operates within expected parameters. Again, the operation and adjustment of parameters is based on the control signal from the control system. Representative for Applicant respectfully submits that none of the cited art teaches or suggests the combination of structural and functional features recited in new claim 32. Allowance of claim 32 is respectfully requested.

VIII. CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be passed to issue.

Should the Examiner have any questions concerning this paper, the Examiner is invited and encouraged to contact Applicant's undersigned attorney at (216) 621-2234, Ext. 106.

No additional fees should be due for this response. In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to Deposit Account No. 20-0668.

I hereby certify that this correspondence is being transmitted to the U.S. Patent and Trademark Office via electronic filing on July 7, 2008.

Respectfully submitted,

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